REMARKS

Upon entry of the present amendment, claims 1-8 will remain pending in the above-identified application and stand ready for further action on the merits.

Amendments to the Claims

In order to more clearly define the present invention, claim 2 has instantly been amended. Specifically, claim 2 has been amended to clarify that the dehydration of the wet porous crumbs should be performed **without** using a mechanical compression type dehydrator, such as a roll type or a Banbury type dehydrator or a screw extruder type compression dehydrator. Support for this amendment is found at page 42, line 23 to page 43, line 9 of the present specification, where it is mentioned that the use of a mechanical compression type dehydrator is **not** preferred in the present application.

The same amendment as in claim 2 has also been effected in claim 8.

In addition, since the instant amendment is only a disclaimer with respect to the use of a mechanical compression type dehydrator in the dehydration and the Examiner has already recognized the embodiment of the present invention where the dehydration is performed without using a mechanical compression, it is believed that the instant amendments to claims 2 and 8 do not raise any new issue problem.

Rejection under 35 USC § 102(b) and 103(a)

In the outstanding Office Action dated March 18, 2008, claims 1 and 8 of the present application have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Kusano** in

combination with Encyclopedia of Chemical Technology, Centrifugal Separation article, and claims 2-7 of the present application have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Kusano** in combination with **Flock** (US Patent 4,423,207). Particularly, the Examiner states:

that "In the Kusano process, the only dehydration step is the step of twin roll dehydration to 45 % of water content", whereas "The instant comparative examples 4 and 5 first employ the steps of dehydration by gravity dehydration to 75 % and impact crushed (which, in term, caused additional dehydration)" and "only after those steps the wet crumbs were further dehydrated to the 43 % water content with the use of twin roll dehydrator"; and

that such Comparative Examples 4 and 5 of the present application "are also within the scope of the claimed process, in which case, it cannot be even asserted to be an evidence of unexpected results or patentable difference for the claimed invention".

Traverse is made as follows.

Amended claims

As already mentioned above, each of claims 2 and 8 has instantly been amended. Specifically, in each of claims 2 and 8, it has been clarified that that the dehydration of the wet porous crumbs should be performed <u>without</u> using a mechanical compression type dehydrator, such as a roll type or a Banbury type dehydrator or a screw extruder type compression dehydrator.

It is believed that the instant amendment has clarified the difference between the present invention and the invention of **Kusano**, and also clarified that Comparative Examples 4 and 5 are outside the scope of the present invention.

Kusano and Comparative Examples 4 and 5 of the present application

Comparative Examples 4 and 5 of the present application are comparative experiments which are even closer to the present invention than the **Kusano** process.

On this matter, MPEP 716(e) states as follows:

> *"Applicants may compare the claimed invention with prior art that is more closely related to the invention than the prior art relied upon by the examiner. In re Holladay, 584 F.2d 384, 199 USPQ 516 (CCPA 1978); Ex parte Humber, 217 USPQ 265 (Bd. App. 1961) (Claims to a 13-chloro substituted compound were rejected as obvious over nonchlorinated analogs of the claimed compound. Evidence showing unexpected results for the claimed compound as compared with the 9-, 12-, and 14- chloro derivatives of the compound rebutted the prima facie case of obviousness because the compounds compared against were closer to the claimed invention than the prior art relied upon.)."*

At least Comparative 5 of the present application is a comparative experiment which is more closely related to the present invention than **Kusano**. For easy reference, the relevant data of Examples 1 and 6 and Comparative Example 5 are excerpted and shown in Table A below.

Table A

	Hydrogenated block copolymer (Mw)	Dehydration method	Water content (%) after dehydration and before drying	Oil-absorbing capability (%)	Appearance*
Ex. 1	Hydrogenated S-B-S (300,000)	Vibration Screen ↓ Impact crushing	75% ↓ 73%	1.2	A
Ex. 6	Hydrogenated S-B-S (300,000)	Continuous Pusher type centrifugal dehydration (no impact crushing)	44%	1.3	A
Comp. Ex. 5	Hydrogenated S-B-S (300,000)	Vibration screen ↓ Twin-roll type compression dehydrator (no impact crushing)	75% ↓ 43%	0.7	C
Ex. 1 of Kusano	Hydrogenated S-I-S (200,000)	Twin-roll type compression dehydrator (no impact crushing)	45%	———	———

Note*: <Criteria for the evaluation of the appearance of a shaped article>

A : The surface of the shaped article is smooth as a whole and the shaped article has a good appearance.
B : The surface of the shaped article is slightly rough.
C : The surface of the shaped article is very rough or foaming is observed in the surface of the shaped article and, hence, the appearance of the shaped article is poor.

Firstly, it should be noted that, contrary to the Examiner's recognition, the impact crushing is **not** performed in Comparative Examples 4 and 5 of the present application. Further, even in Example 1 of the present application, the impact crushing is performed in a manner such that substantially **no** dehydration occurs [specifically, the impact crushing lowered the water content only by 2 % (75 % → 73 %)]; therefore, such an impact crushing as in Example 1 would **not** generally be regarded as dehydration.

More importantly, as can be seen from Table A above, Comparative Example 5 is a reasonable comparative experiment to show the **advantage** of the process of the present invention **over** the process using such a mechanical compression dehydrator as used in **Kusano**. Specific reasons for this are as follows.

In all of Examples 1 and 6, and Comparative Example 5 of the present application, the

same polymer (a hydrogenated S-B-S having an Mw of 300,000) is used, whereas Example 1 of **Kusano** uses a hydrogenated S-I-S having an Mn of 200,000.

The **only difference** between Example 1 and Comparative Example 5 is that, after vibration screen dehydration to reduce the water content to 75 %, the **mechanical compression** dehydration is performed in Comparative Example 5 to reduce the water content to 43 % instead of the impact crushing after the vibration screen dehydration in Example 1.

The **only difference** between Example 6 and Comparative Example 5 is that the dehydration (vibration screen + mechanical compression) in Comparative Example 5 to reduce the water content to 43 % is replaced by centrifugal dehydration in Example 6 to reduce the water content to 44 %.

In each of Examples 1 and 6, the obtained dried porous crumbs exhibit **excellent oil-absorbing capability** (1.2 or 1.3) and the shaped article produced using the dried porous crumbs exhibits **excellent appearance** (evaluated as "A"), whereas the dried porous crumbs obtained in Comparative Example 5 exhibit poor oil-absorbing capability (0.7) and the shaped article produced using the dried porous crumbs exhibits poor appearance (evaluated as "C").

From items (II-1) to (II-4) above, it is apparent that the inferior results in Comparative Example 5 can be attributed to the employment of the **mechanical compression dehydration**.

In addition, it should be noted that the results of Comparative Example 5 show that, even when the mechanical compression dehydration is performed after the water content has already been reduced to 75 %, the oil-absorbing capability of the resultant dried porous crumbs and the appearance of the shaped article are **poor** as compared to those in case where the dehydration is performed **without** mechanical compression. Therefore, it is easily expected that, in the case of

Kusano where the dehydration "to give wet crumbs of water content of 45 wt%" is performed **only** by mechanical compression, the results would be even worse than those in Comparative Example 5 of the present application.

Combination of Kusano and Flock

With respect to **Flock**, this reference has **no** description about the production of dried **porous** crumbs of a hydrogenated block copolymer and, hence, cannot be combined with the teaching of **Kusano** which relates to the dried **porous** crumbs of a hydrogenated block copolymer. More specific explanations are made below.

As can be seen from claim 1 of **Flock**, this reference relates to a "process for recovering a thermoplastic polycarbonate or polyphenylene oxide resin from a solution of said resin in a solvent .....".

The technique of **Flock** is different from that of **Kusano** in the following points.

(III-a) The polymer used in **Kusano** is a hydrogenation product of a **block** copolymer comprising a **conjugated diene** polymer block and a **vinyl aromatic** polymer block (e.g., see claim 1 of **Kusano**). On the other hand, the polymer used in **Flock** is a "polycarbonate or polyphenylene oxide resin" (e.g., claim 1).

As well known in the art, the hydrogenated block copolymer (such as SEPS used in Example 1 of Kusano) and the "polycarbonate or polyphenylene oxide resin" used in Flock are **totally different** in mechanical properties. For example, the SEPS used in **Kusano** is a rubber-like "elastomer", whereas polycarbonate and polyphenylene oxide used in **Flock** are very hard "engineering plastics". Elastomers such as SEPS are often used as impact modifiers for

engineering plastics such as polycarbonate.

As can be easily understood by those skilled in the art, the influence of mechanical impact caused by a dehydrator is **totally different** between the case of elastomers as used in **Kusano** and the case of vary hard engineering plastics as used in **Flock**.

Further, it is reasonable to consider that **Flock** mentions gravity dehydration simply because the mechanical "compression" may not be so suitable to dehydrate polycarbonate resin which is **very hard and, hence, cannot be easily compressed, differing from** the elastomers used in **Kusano**.

On the hand, it can be reasonably deduced that **Kusano** employs mechanical compression dehydration based on a reasonable assumption that the elastomers as used in **Kusano** can be easily compressed so that the dehydration of the wet porous can be effected satisfactorily and easily, whereas the non-compression dehydration, such as gravity dehydration, cannot satisfactory and efficiently dehydrate the wet porous crumbs.

Therefore, those skilled in the art would **not** think that the teaching of **Flock** can be directly combined with **Kusano**.

Kusano relates to the "microporous crumbs of a hydrogenated block copolymer which absorb a softening agent, a plasticizer and the like uniformly and rapidly, have an excellent handling property and provide kneaded molding compounds free of non-melted matters upon kneading" (col. 2, lines 5 to 10).

That is, the "microporous crumbs" of **Kusano** are used as a modifier when a molding resin composition is produced from a thermoplastic resin and a liquid additive, such as a softening agent or a plasticizer. In this connection, **Kusano** describes as follows:

> *"In this drying process, it is important to set drying conditions harmless to the micropores of the hydrous crumbs obtained in the steam stripping process. For this purpose, it is preferred to use, for example, a two stage process, wherein the obtained slurry is dehydrated by mechanical squeezing to produce wet crumbs of water content of 1% to 60% by weight in the first stage and then the water content of the crumbs is reduced to less than 1% by weight under heating in the second stage."*

Thus, **Kusano** clearly describes that the "mechanical squeezing" is preferred to maintain such a desired microporous structure that the porous crumbs can absorb a liquid additive used in a molding resin composition.

On the other hand, **Flock** simply describes a "process for recovery of thermoplastic resins from solutions thereof in organic solvents" (col. 1, lines 6-8) to obtain solid thermoplastic resins which can be directly melt-molded (col.2, lines 1-5, and col. 7, lines 55-60).

Flock has **no** teaching or suggestion about dried porous crumbs used in a thermoplastic resin composition for absorbing liquid additives, but simply describes a thermoplastic resin used as a molding material. Therefore, **Flock** pays **no** attention to the pores of the dehydrated resin or the final dried resin. This is also apparent from the fact that the "compaction and milling operations to remove excess water and adjust granule size" may be performed after the solvent removal of the first step (col.4, lines 16-18) and that **Flock** has **no** description about the pores of the dehydrated resin or the final dried resin.

Thus, **Flock** has **no** teaching or suggestion about the production of dried **porous** crumbs having a porous structure such that the crumbs can absorb a **large** amount of oil.

For those skilled in the art, it is apparent that **Flock** simply attempts to remove a solvent and water as much as possible. For this purpose, **Flock** proposes to increase the surface area of the resin particles, which can most simply be achieved by reducing the particle size.

On the other hand, as mentioned above, **Kusano** attempts to provide a hydrogenated block copolymer in the form of "microporous crumbs" which absorb a liquid additive, such as a softening agent or a plasticizer, and for this purpose, **Kusano** teaches that the **mechanical squeezing** is **preferred**.

Therefore, those skilled in the art would **by no means** replace the mechanical squeezing with the gravity dehydration even in view of **Flock** which has **no** teaching or suggestion about the importance of the pores of the final dried product and the oil-absorbing capacity of the final dried product.

Thus, **none** of the cited references have any teaching or suggestion about the advantage of the dehydration by gravity dehydration or filtration dehydration **without** using a mechanical compression type dehydrator, which is necessary to achieve the "oil-absorbing capability of 1.0 or more". Needless to say, none of the cited references teach or suggest that the appearance of a shaped article can be greatly improved by the use of the dried porous crumbs having an "oil-absorbing capability of 1.0 or more" which is obtained by the above-mentioned dehydration **without** using a mechanical compression type dehydrator.

Therefore, it is apparent that claims 1 to 8 of the present application are **neither** anticipated **nor** obvious over the cited references taken individually or in any combination.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of pending claims 1-8 are allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

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Respectfully submitted,

By John W. Bailey

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